Issues in Collaboration Services

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Abstract   This paper introduces the special issue on collaboration services and protocols for distributed collaboration in networked enterprises and e-science.

1 Introduction

Distributed collaborations within networked enterprises, organizations and e-science have been changing rapidly over the last years. On the one hand, enterprises and e-science environments demand increased flexibility, interconnectivity, and autonomy, requiring new coordination and interaction styles for collaboration among people and software services. On the other hand, new paradigms such as service-oriented computing, Grid computing and cloud computing enable new pervasive and mobile collaboration scenarios, but lead to higher complexity of systems. The latest trends in distributed collaboration technologies allow people to work across organizational boundaries and to collaborate among/in organizations and communities. Today's distributed collaboration technologies are strongly dependent on service-based models.

   This special issue aims at presenting the latest research on collaboration services and protocols for distributed collaboration in networked enterprises and e-science. We are interested in understanding SOA-based collaboration services and protocols addressing the interoperability and integration issues among different organizations in distributed collaboration scenarios, services and protocols for virtual teams/communities-based collaborations, standard-based pervasive collaboration services architectures together with common, interoperable collaboration services and protocols, collaboration as well as services and protocols for ad-hoc cooperation in situations where the dedicated infrastructure is absent or cannot be used.

   In this special issue, four papers have been selected to demonstrate different aspects of modern collaboration services, including (semantic-based) collaboration services and proto-

cols for loosely-coupled and large-scale teamwork, mobile and adaptive collaboration systems for ad-hoc and virtual teams, trust models for service-based collaboration services, and modeling of collaboration services for virtual enterprises. In the first paper, *CERA: A Collaborative Environment Reference Architecture for Interoperable CWE Systems*, Peristeras and colleagues present a reference architecture for service-based Collaborative Working Environment (CWE) systems. The fact that modern CWEs rely on a basic set of common collaboration services and various projects and research efforts are continuing to develop common collaboration services but have little reuse of existing ones have motivated the work on this paper. The proposed reference architecture of common collaboration services provides solutions for harnessing and sharing common services in CWEs.

In the second paper, *POPEYE: A System Providing Collaborative Services for Ad-hoc and Spontaneous Communities*, Blaya and colleagues present a system for collaborative ad-hoc communities. Setting up virtual teams in an easy manner for ad-hoc collaborative works is a growing demand. Consider the need to support virtual team's collaboration across the boundary of single organization, at any time, any place with any device, POPEYE's team has designed and prototyped a platform of collaborative services which can be easy set up and deployed for ad-hoc teams.

In virtual enterprises and e-science environments, collaborations cannot be done without trust. As a fundamental aspect, trust determines how teams and services can be selected and utilized, and to which extend, a collaboration can be spanned across multiple organizations in an efficient way. In the third paper, *Collaboration Through Computation: Incorporating Trust Model into Service-Based Software Systems*, Uddin and his colleagues have presented a trust model for service-based collaboration systems. The proposed trust model is based on service interactions and contexts inherent obtained from collaborations and provides useful information for making recommendations in utilizing collaboration services.

While the first three papers addressed various issues related to architectures, models, runtime systems and trust for collaboration services, in the last paper of this issue, *Pattern-based E-Service Modelling for Virtual Service Enterprises*, Zirpins and Emmerich present techniques for modeling collaboration services in virtual enterprises. Their approach is to utilize software service technologies to model virtual business service processes as e-services.

The four selected papers cover major research topics for modern collaboration services, named *(i)* SOA-based collaboration services architecture and modeling, *(ii)* common collaboration services and context-based composition of collaboration services, and *(iii)* trust in SOA-based collaborative working environments. We hope that papers in this issue will provide insightful information and useful lessons for researchers and practitioners in the development and utilization of collaboration services for dynamic and complex collaboration scenarios.

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